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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,218	09/21/2001	Ralph N. Crabtree	BRCK-001/01US	5873

22903 7590 04/11/2005

COOLEY GODWARD LLP
ATTN: PATENT GROUP
11951 FREEDOM DRIVE, SUITE 1700
ONE FREEDOM SQUARE- RESTON TOWN CENTER
RESTON, VA 20190-5061

EXAMINER

REKSTAD, ERICK J

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/960,218	Applicant(s) CRABTREE ET AL.	
	Examiner Erick Rekstad	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-25 is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-19 and 26 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a final rejection for application no. 09/960,218 in response to the amendment filed on October 29, 2004 in which claims 7-26 are presented for examination.

Response to Arguments

Applicant's arguments filed October 29, 2004 have been fully considered but they are not persuasive. Applicant states that Cia does not teach the requirements of the new claims 7-26. The Applicant states that Cia teaches three types of tracking modules (SVT, MVTT, and ACS). Cia teaches the use of the modules (SVT, MVTT, and ACS) together in order to automatically follow the continuous flow of the subject image of interest across multiple video streams in time (Introduction). Therefore, Cia teaches the requirements of following the path of an object as required by claim 7 and 26 as shown below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-10, 12, 17-19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Automatic Tracking of Human Motion in Indoor Scenes Across Multiple Synchronized Video Streams" to Cai et al

[claims 7-10, 12, and 26]

Cai teaches a framework for tracking moving humans in an indoor environment consisting of three main modules: Single View Tracking (SVT), Multiple View Transition Tracking (MVT) and Automatic Camera Switching (ACS) (Abstract). The framework is used to track a human using multiple cameras over time as shown in Figure 1.

In the module SVT, Cai teaches the tracking of a human within a single camera over time using the position (X_t) at a unique time (t) (Sections 2.1.3, 2.2.1 and 2.2.2). As required by claims 10 and 12, the information is from a video image and is a 2D point (Section 2.1.3). Cai then uses the determined values for the path of the human in the individual cameras to determine if the paths are for the same human (3.1, 3.1.1 and 3.1.2).

Cai teaches the objective of the system is to automatically follow the continuous flow of the subject image of interest across multiple video streams in time (Last Paragraph of Introduction). Cai further teaches the automatic switching of a camera when the subject image appears to be moving out of the viewing boundaries of the current camera, when the subject is moving too far away, and when the subject is occluded by another subject for more than two frames (Section 4). Therefore the video provided contains the first path and parts of the second path that is not substantially similar to the first path as required by claims 8 and 9.

Cai does not specifically teach the use of code to be run on a processor. It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the module system of Cai with a general purpose processor and code in order

to use off the shelf hardware and provide the ability to easily upgrade the software (Official Notice).

[claims 17-19]

Cai further teaches a confidence value that the object associated with the first path and the object associated with the second path are the same object in order to determine which camera to switch to (Section 4.1 and 4.2). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the confidence value of Cai in order to switch to the optimal camera for tracking the object.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cai as applied to claim 12 above, and further in view of US Patent 6,816,186 to Luke et al.

[claim 13]

Cai teaches the use of 3D points to conduct spatial-temporal matching of an image point (Section 3.1.2). This provides the ability to track the subject of interest across the views of multiple pre-calibrated fixed cameras (Section 3). Cai does not specifically teach the use of converting each spatial value to a spatial value with in a universal coordinate system.

Luke teaches the use of converting the spatial values into universal coordinates system in order to determine the location of the object in relation to a monitored area. This removes the false-alarms that might be generated by 2D systems (Col 5 Lines 8-65, Fig. 9). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the tracking method of Cai with the 3D coordinate method of Luke in order to determine the location of the object in relation to a monitored area.

Claims 11, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai as applied to claim 7 above, and further in view of US Patent 6,359,647 to Sengupta et al.

[claim 11]

Cai further teaches converting the different camera coordinates into the same coordinate system in order to track the object between cameras (Section 3). Cai does not teach the coordinate system being that of a real world coordinate system.

Sengupta teaches the coordinate system can be that of the actual dimensions relative to a reference such as the floor plan in order to provide a means for automatically switching cameras (Col 4 Lines 35-67, Col 5 Lines 37-53). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the real world coordinate system of Sengupta in the tracking system of Cai in order to provide a means for automatically switching cameras.

[claims 15 and 16]

Cai teaches the use of multiple cameras to track a person as shown above for claim 7. Cai does not specifically teach the process of analyzing a relationship between the first path and a region of interest, the region of interest being one of an exclusion region, a break region, and a warping region.

Sengupta teaches the use of a method of determining the relationship between the first path and a region of interest, the region of interest being one of an exclusion region, a break region, and a warping region in order to determine the camera to switch to (Col 4 Lines 27-67, Figs. 3a-3c). It would have been obvious to one of ordinary skill

in the art at the time of the invention to combine the tracking system of Cai with the controller method of Sengupta in order to determine the camera to switch to.

Allowable Subject Matter

Claim 14 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 20-25 allowed.

The following is a statement of reasons for the indication of allowable subject matter:

In regards to claim 14, Cai teaches the processor-readable medium of claim 12. Cai. Cai does not teach converting the time value to a time value within a universal coordinate system. This feature taken with the others in the claims defines over the prior art.

In regards to claims 20-25, Cai teaches the processor-readable medium comprising code to automatically switch cameras in order to follow the path of a moving object, as shown above for the rejection of claim 7. Cai does not teach the receiving of information associated with a plurality of paths, each path from the plurality of paths representing movement of an object defined over time and iteratively determine, for each path from the plurality of paths, whether that path can be linked to another path from the plurality of paths at least partially based on predetermined linking rules. These features taken with the others in the claims define over the prior art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6,654,047 to Iizaka.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 571-272-7338. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 571-272-7331. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2613

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erick Rekstad
Examiner
AU 2613
(571) 272-7338
erick.rekstad@uspto.gov



CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600